



U.S. Department
of Transportation
**Federal Highway
Administration**

Memorandum

Subject: INFORMATION: NCHRP Report 350 NonProprietary
Guardrails and Median Barriers

Date: February 14, 2000

From: Dwight A. Horne *Dwight A. Horne*
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Reply to: HMHS-B64

To: Resource Center Directors
Division Administrators
Federal Lands Highway Division Engineers

In 1993, the FHWA formally adopted the performance evaluation guidelines for highway features set forth in the NCHRP Report 350. All new, permanent roadside and median barriers installed on the NHS must now meet these guidelines. Since one of the most significant changes in testing procedures was the substitution of a 2000-kg (4400-lb) pickup truck for the 4500-lb passenger sedan formerly used in crash-testing, testing was undertaken to re-certify existing hardware under the Report 350 guidelines.

Although the results of many of these re-certification tests were reported in the past and are generally known to Federal and State transportation agency personnel and others in the highway safety community, they have not been the subject of formal acceptance letters as is routinely done with proprietary and State-tested items at the manufacturer's or State's request. Consequently, this memorandum summarizes and describes all nonproprietary longitudinal roadside and median barriers that have met Report 350 requirements at one or more test levels or are considered equivalent to barriers that have been so tested. Where applicable, the reference page number for each barrier type included in the 1995 AASHTO-AGC-ARTBA "Guide to Standardized Highway Barrier Hardware" is noted in parenthesis. Some of these barriers have also been identified in earlier acceptance letters, but are included in this consolidated listing as well. In such instances, the original acceptance number is noted in parenthesis for ready reference.

Test Level 2 (TL-2) Roadside and Median Barriers

- Weak-post W-beam Guardrail (SGRO2 and SGMO2)
- Strong Post (Steel) W-beam Guardrail w/steel block (SGRO4a)

Test Level 3 (TL-3) Roadside and Median Barriers

- Weak-Steel Post Cable (3-Strand) Guardrail (SGRO1a-b)
- Weak-Post Box-beam Guardrail and Median Barrier (SGRO3 and SGMO3)
- Strong-Post (Wood) W-Beam Guardrail and Median Barrier w/ wood or approved plastic block (SGRO4b, SGMO4b, and SGMO6b)
- Strong-Post (Steel) W-Beam Guardrail and Median Barrier w/ routed wood or approved plastic block (SGRO4a and SGMO4a with non-steel blocks, and SGMO6a with steel, wood or plastic blocks)

Strong-Post (Wood) Thrie-beam Guardrail and Median Barrier w/ wood or approved plastic block (SGRO9c and SGM09c)
 Strong-Post (Steel) Thrie-Beam Guardrail and Median Barrier w/ routed wood or routed approved plastic block (SGRO9a and SGM09a with non-steel blocks)
 Merritt Parkway (CT) Steel-backed Timber Guiderrail (Acceptance Letter B-45)

Test Level 4 (TL-4) Roadside and Median Barriers

Strong-Post Modified Thrie-Beam Guardrail and Median Barrier (SGRO9b and SGM09b) note: the correct length of the modified spacer block is 432 mm, not the 554-mm shown on PWBO3.
 810-mm tall Safety-Shape (New Jersey) Median Barrier(SGM11a)
 810-mm tall F-Shape Median Barrier (SGM10a)
 810-mm tall Vertical Concrete Barrier *
 810-mm tall Constant Slope Barrier (TX and CA designs - see also Acceptance Letters B-17 and B-45)

Test Level 5 (TL-5) Roadside and Median Barriers

1070-mm tall Safety-Shape (New Jersey) Median Barrier(SGM11b)
 1070-mm tall F-Shape Median Barrier (SGM10b)
 1070-mm Ontario Tall Wall Median Barrier (SGM12 and Acceptance Letter B-19)
 1070-mm tall Vertical Concrete Barrier *
 1070-mm tall Constant slope barrier (TX and CA designs) **

* these two designs were tested as bridge railings. They may be used as roadside or median barriers if reinforcing and foundation details are equivalent to the crash tested installations.

** the Constant Slope Barriers were not tested to the TL-4 level, but may be considered TL-4 barriers when cast in place or slip formed if the dimensions, reinforcing, and foundation details are equivalent to designs that have been successfully tested.

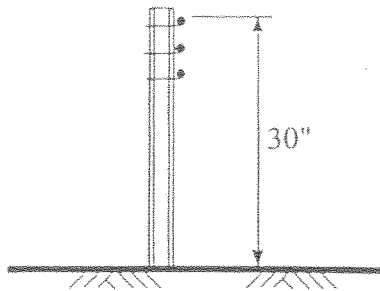
Attachment 1 includes schematic drawings of most of the flexible and semi-rigid barriers listed above. Attachment 2 shows the dimensions of the routed wood block used with the strong steel post w-beam system. The block dimensions are the same for the routed Thrie-beam block, except that its length is 554 mm and it has two offset holes for bolting to the post flange. Additional information on blockouts for use with strong-post w-beam guardrail systems is contained in my January 27, 1998, memorandum to the field on that subject (Acceptance Letter B-44).

As additional nonproprietary barrier systems are tested, this acceptance letter will be supplemented accordingly. Any questions on this topic should be addressed to Mr. Richard Powers of my staff at (202) 366-1320.

2 Attachments

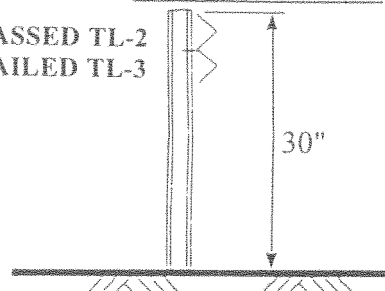
PASSED NCHRP 350 (TL-3 unless noted)

3-cable

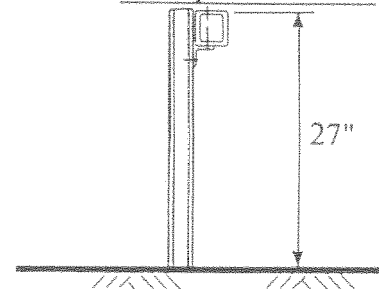


Weak-post W-beam

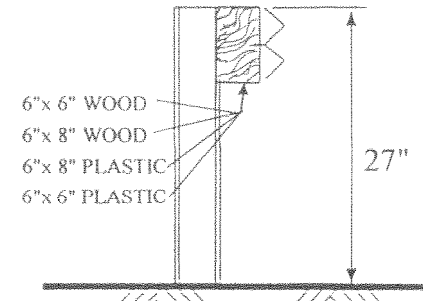
PASSED TL-2
FAILED TL-3



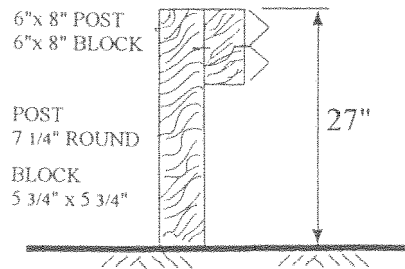
Weak-post box beam



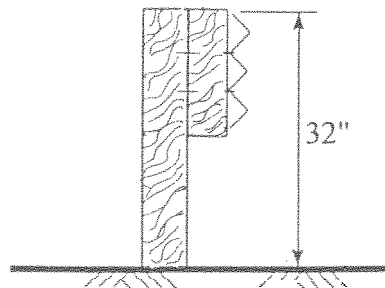
Strong-post W-beam



Strong-post W-beam

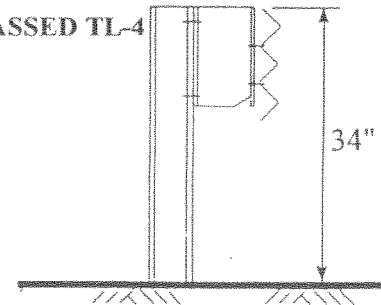


Strong-post thrie-beam

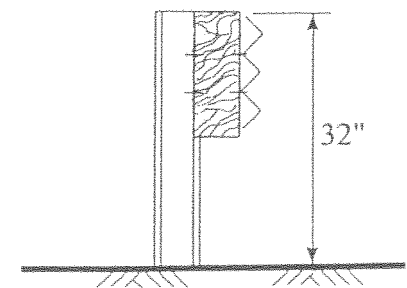


Modified thrie-beam

PASSED TL-4



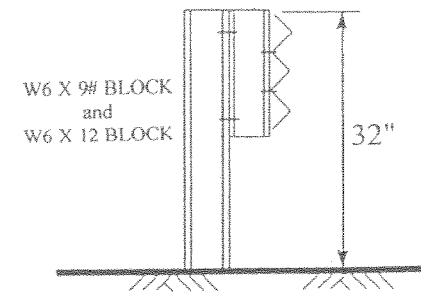
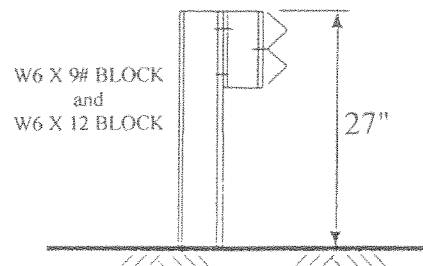
Strong-post thrie-beam



Strong-post W-beam

FAILED NCHRP 350 (TL-3)

Strong-post thrie-beam



JUNE 1999

